

**REMARKS**

The statement by the Examiner that claims 2, 3, 10, 11, 20, 21, 28, 29, 34, 35, 41, 42, 49, 50, 54, 55, 58, 59, 69, 70, 72 and 73 contain patentable subject matter is gratefully acknowledged.

Claims 1, 16-19, 27, 38, 40, 48, 50, 54, 55, 57, 65 and 71 have been amended.

Claim 49 has been canceled solely to further the prosecution of the application.

Applicants reserve the right to pursue the original claims and other claims in this application and in other applications. In addition, paragraphs [0033] and [0060]-[0062] of the specification have been amended to correct minor typographical errors. No new matter has been introduced by the amendments to paragraphs [0033] and [0060]-[0062].

Claims 16-18 stand objected to based on informalities. Specifically, the Office Action states that the phrase “said circuit” is unclear. Claim 38 stands objected to as depending upon claim 37, but the Office Action believes claim 38 should depend on claim 27. Claims 16-18 and 38 have been amended pursuant to the Examiner’s recommendation. Accordingly, the objection should be withdrawn and the claims allowed.

Claims 1, 4-9, 12, 14, 15, 19, 22-27, 30-33, 36, 38-40, 43-48, 51-53, 56, 57, 60-68, 71 and 74 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Schoenfeld et al., U.S. patent no. 6,816,994 (hereinafter “Schoenfeld”). The rejection is respectfully traversed.

Claim 1 recites a low power control circuit comprising “a differential circuit connected to a reference voltage and a first control signal; and a buffer circuit having an input connected to the first control signal.” According to claim 1, “a level of the reference voltage is altered during the low power operating mode.” Applicants

respectfully submit that Schoenfeld fails to disclose, teach or suggest the claimed invention.

Specifically, Schoenfeld discloses a low power control circuit that uses a lower current input buffer for waking up a plurality of higher current buffers. The lower current buffer monitors a wake-up signal and when the wake-up signal is received, the buffer enables the higher current buffers. Schoenfeld Col. 3, ll. 25-46 and Col. 4, l. 17 to Col. 5, l. 12. Although Schoenfeld uses a CMOS buffer and a differential circuit, Schoenfeld does not disclose, teach or suggest altering a level of a reference voltage used by the differential circuit during the low power mode. This is a key aspect of the claimed invention, which helps the claimed invention to drastically reduce and conserve power in the circuit during low power mode.

Accordingly, Applicants respectfully submit that claim 1 is allowable over Schoenfeld. Claims 4-9, 12, 14 and 15 depend from claim 1 and are allowable along with claim 1 for at least the reasons set forth above and on their own merits.

Claim 19 recites a low power control circuit “for transitioning a memory device from a first operating mode to a low power operating mode when a first control signal has a first value, and transitioning the memory device from the low power operating mode to the first operating mode when the first control signal has a second value.” The low power control circuit comprises “a differential amplifier connected to a reference voltage and a first control signal; a buffer circuit having an input connected to the first control signal; and a first logic circuit connected to said differential amplifier and said buffer circuit, wherein in the first operating mode said first logic circuit disables the buffer circuit and enables the differential amplifier such that the differential amplifier is used to detect the first value, and in the low power mode, enables the buffer circuit and disables the differential amplifier until the buffer circuit

detects the second value.” According to claim 19, “said low power control circuit is adapted to ignore the reference voltage during the low power operating mode.”

Applicants respectfully submit that Schoenfeld fails to disclose, teach or suggest the claimed invention.

As set forth above, Scheonfeld discloses a low power control circuit that uses a lower current input buffer for waking up a plurality of higher current buffers. The lower current buffer monitors a wake-up signal and when the wake-up signal is received, the buffer enables the higher current buffers. Although Schoenfeld uses a CMOS buffer and a differential circuit, the Schoenfeld differential circuit is not adapted to “ignore the reference voltage during the low power operating mode.” Accordingly, Applicants respectfully submit that claim 19 is allowable over Schoenfeld. Claims 22-26 depend from claim 19 and are allowable along with claim 19 for at least the reasons set forth above and on their own merits.

Claim 27 recited a memory device comprising a low power control circuit “wherein a level of the reference voltage is altered during the low power operating mode.” Applicants respectfully submit that claim 27 is allowable for at least the reasons set forth above and on its own merits. Claims 30-33, 36, and 38-39 depend from claim 27 and are allowable along with claim 27 for at least the reasons set forth above and on their own merits.

Claim 40 recites a memory device comprising a low power control circuit “wherein said low power control circuit is adapted to ignore the reference voltage during the low power operating mode.” Applicants respectfully submit that claim 40 is allowable for at least the reasons set forth above and on its own merits. Claims 43-47 depend from claim 40 and are allowable along with claim 40 for at least the reasons set forth above and on their own merits.

Claim 48 has been amended to include subject matter that the Office Action has deemed allowable. Claims 51-53 and 56 depend from claim 48 and are allowable along with claim 48.

Claim 57 recites a processor system comprising a memory device including a low power control circuit “wherein said low power control circuit is adapted to ignore the reference voltage during the low power operating mode.” Applicants respectfully submit that claim 57 is allowable for at least the reasons set forth above and on its own merits. Claims 60-64 depend from claim 57 and are allowable along with claim 57 for at least the reasons set forth above and on their own merits.

Claim 65 recites a method of transitioning a memory device between a first operating mode and a low power operating mode. The method comprises the acts of “detecting, using a differential circuit, when a first control signal has a first value; transitioning the memory device from the first operating mode to the low power operating mode; disabling the differential circuit; [and] changing a level of a reference voltage used by the differential circuit.” The method also comprises the acts of “restoring the level of the reference voltage; [and] enabling the differential circuit.” Applicants respectfully submit that claim 65 is allowable for at least the reasons set forth above and on its own merits. Claims 66-68 depend from claim 65 and are allowable along with claim 65 for at least the reasons set forth above and on their own merits.

Claim 71 recites a method of transitioning a memory device between a first operating mode and a low power operating mode, “wherein a level of the reference voltage is altered during the low power operating mode.” Applicants respectfully submit that claim 71 is allowable for at least the reasons set forth above and on its own

merits. Claim 74 depends from claim 71 and is allowable along with claim 71 for at least the reasons set forth above and on its own merits.

The rejection should be withdrawn and claims 1, 4-9, 12, 14, 15, 19, 22-27, 30-33, 36, 38-40, 43-48, 51-53, 56, 57, 60-68, 71 and 74 allowed.

Claims 13 and 37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Schoenfeld in view of Qureshi et al., U.S. patent no. 5,793,776 (hereinafter “Qureshi”). The rejection is respectfully traversed.

As an initial matter, pursuant to 35 U.S.C. § 103(c), Schoenfeld cannot properly be cited in a rejection under 35 U.S.C. § 103(a) in the present application as the Schoenfeld patent and the present application are commonly owned by the same assignee and the Schoenfeld patent can only qualify as prior art under 35 U.S.C. § 102(e)/103(a). A Statement Concerning Common Ownership, as required under MPEP § 706.02(l)(2), is included below.

**Statement Concerning Common Ownership**

Applicants' undersigned attorneys state that both the present application and Schoenfeld were, at the time the invention was made, subject to an obligation of assignment to the same person, namely, Micron Technology, Inc.

Applicants respectfully submit that for at least this reason claims 13 and 37 are allowable over Schoenfeld and Qureshi. Furthermore, claim 13 depends from claim 1 and claim 37 depends from claim 27. As set forth above, claims 1 and 37 are believed to be allowable over Schoenfeld. Applicants respectfully submit that Qureshi fails to cure the deficiencies of Schoenfeld. This is another reason why claims 13 and 37 are allowable.

The rejection should be withdrawn and the claims allowed.

Claims 16-18, 75 and 76 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Schoenfeld in view of Kajigaya et al., U.S. patent no. 5,539,692 (hereinafter “Kajigaya”). The rejection is respectfully traversed.

As an initial matter, pursuant to 35 U.S.C. § 103(c), Schoenfeld cannot properly be cited in a rejection under 35 U.S.C. § 103(a) in the present application as the Schoenfeld patent and the present application are commonly owned by the same assignee and the Schoenfeld patent can only qualify as prior art under 35 U.S.C. § 102(e)/103(a). A Statement Concerning Common Ownership, as required under MPEP § 706.02(l)(2), is set forth above.

Accordingly, Applicants respectfully submit that claims 16-18, 75 and 76 are allowable over Schoenfeld and Kajigaya. Furthermore, claims 16-18 depend from claim 1 and claims 75 and 76 depend from claim 71. As set forth above, claims 1 and 71 are believed to be allowable over Schoenfeld. Applicants respectfully submit that Kajigaya fails to cure the deficiencies of Schoenfeld. This is another reason why claims 16-18, 75 and 76 are allowable.

The rejection should be withdrawn and the claims allowed.

Claims 1, 4, 5, 15, 27, 37-39, 48 and 56 stand rejected under the judicially created doctrine of obviousness-type double patenting over claims 39, 40 and 42-44 of U.S. patent no. 6,816,994 (Schoenfeld) in view of Jang (U.S. Patent no. 6,058,063) and Qureshi. The rejection is respectfully traversed.

As set forth above, Schoenfeld fails to disclose key features of the inventions recited in claims 1, 4, 5, 15, 27, 37-39, 48 and 56. Accordingly, Applicants respectfully submit that none of the claims of the Schoenfeld patent can render claims 1, 4, 5, 15, 27, 37-39, 48 and 56 obvious under the judicially created doctrine of obviousness-type

double patenting since they are missing the same distinguishing features. Accordingly, the rejection should be withdrawn and claims 1, 4, 5, 15, 27, 37-39, 48 and 56 allowed.

Claims 2, 3, 10, 11, 20, 21, 28, 29, 34, 35, 41, 42, 49, 50, 54, 55, 58, 59, 69, 70, 72 and 73 stand objected to as depending upon rejected base claims, but are otherwise allowable. The objection is respectfully traversed.

Claims 2, 3, 10 and 11 depend from claim 1 and are allowable along with claim 1 for at least the reasons set forth above and on their own merits. Claims 20 and 21 depend from claim 19 and are allowable along with claim 19 for at least the reasons set forth above and on their own merits. Claims 28-29 and 34-35 depend from claim 27 and are allowable along with claim 27 for at least the reasons set forth above and on their own merits. Claims 41-42 depend from claim 40 and are allowable along with claim 40 for at least the reasons set forth above and on their own merits. Claim 49 has been canceled since its limitations have been placed in claim 48. Claims 50, 54 and 55 have been rewritten as independent claims including the limitations of their respective base claims. Claims 58-59 depend from claim 57 and are allowable along with claim 57 for at least the reasons set forth above and on their own merits. Claims 69-70 depend from claim 65 and are allowable along with claim 65 for at least the reasons set forth above and on their own merits. Claims 72-73 depend from claim 71 and are allowable along with claim 71 for at least the reasons set forth above and on their own merits.

The objection should be withdrawn and claims 2, 3, 10, 11, 20, 21, 28, 29, 34, 35, 41, 42, 50, 54, 55, 58, 59, 69, 70, 72 and 73 allowed.

In view of the above amendment, Applicants believe the pending application is in condition for allowance.

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Respectfully submitted,

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